

METALLURGY

Magnesium Alloys Improve

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► IMPROVEMENT in the resistance of magnesium alloys to destructive corrosion, by reducing the iron content, has resulted in renewed interest in possible applications of the lightweight alloy. These facts were revealed by P. T. Stroup, G. F. Sager, and J. B. West, of the Aluminum Company of America, New Kensington, Pa., at the meeting of the American Society for Metals, held in Cleveland.

While sheets of magnesium alloy cost more per pound than sheets of other commercial structural metals, the light weight of the alloy makes it possible to fabricate more articles per pound from magnesium than from other metals. As an illustration, the authors stated that four times as many objects can be made from magnesium sheet as from steel sheet, and 1.5 times the number from aluminum sheet.

The resistance to corrosion of magnesium alloys is greatly underrated because of the poor behavior of the metal in the early days of its use, the authors commented. The inherent resistance of magnesium to corrosion has been greatly improved by extensive studies on the effect of metallic impurities such as iron, nickel, cobalt, copper and chromium on the corrosion resistance of magnesium. A decrease in iron content of magnesium alloys resulted in improved resistance to corrosion.

Since corrosion reduces the tensile strength of metals, the more corrosion-resistant magnesium sheet has such characteristics as "outstanding machinability," "excellent welding characteristics," and it is "resistant to alkalis and fluorides," the authors reported.

The spreading of liquids over the surface of solids is important in many engineering fields. In metallurgy, this phenomenon is interesting because of problems which arise in the brazing and coating processes. For example, it is difficult to get liquid silver to flow over a smooth clean surface of iron.

Ways by which liquid metals may be caused to spread very readily on metallic surfaces were revealed to the meeting by E. R. Parker, of the University of California at Berkeley, and Roman Smo-

luchowski, of the Research Laboratory, General Electric Company, Schenectady, N. Y.

The behavior of a liquid on a solid metallic surface depends upon the condition of that surface, the authors stated. Liquid metal, they pointed out, spreads best on finely ground, or on polished and etched surfaces, both of which have fine capillary structure. It does not spread on polished surfaces under the same conditions.

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INVENTIONS

Reduction in Inventions And Research Due to War

► THE FACT that thousands of scientists and engineers who are normally engaged in peacetime research are now in military service or devoted to war problems has resulted in a marked reduction in fundamental research and inven-

tion, R. J. Dearborn, president of the Texaco Development Corporation and chairman of the National Association of Manufacturers committee on patents, concludes in a report recently made public.

War stimulates the application of accumulated knowledge rather than the pioneering on the frontiers of science and technology, he pointed out. Not since the first ten years of the 20th century has the number of applications for patents, and the total of patents granted, fallen to the low point of today's record. Only 14,000 patents were issued during the first six months of this year. During the same period in 1939, about 21,000 patents were issued.

"We are burning up America's backlog of scientific knowledge during the war just as we are using up our natural resources," Mr. Dearborn declared.

To prevent a decline in the normal rate of scientific and technological progress, he stated that incentive must be provided for research and invention. A strong patent system, Mr. Dearborn urged, will stimulate and encourage inventors and research workers to produce new ideas that can be transformed into useful products. This would provide, in his opinion, the incentive necessary to regain this lost scientific momentum.

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CHAIN SAW—Powered by a motor similar to the type used to propel outboard motor boats, the chain saw weighs about 100 pounds, and is so well balanced that it can be operated in any position. All operations are controlled by the operator on the left.